APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,948	07/03/2003	Hisashi Ishikawa	00862.023127.	5415

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EXAMINER
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ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *05 November 2007*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,3-7,20,22-26 and 39* is/are pending in the application.

    4a) Of the above claim(s) *2,8-19,21,27-38 and 40-61* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,3-7,20,22-26 and 39* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *9/27/07*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to claims 1, 3-7, 20, 22-26 and 39

have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 7, 20, 22, 26, and 39 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Katayama et al. (Katayama) (US 5,488,673).

With regard to claim 1, Katayama discloses an image processing

apparatus (e.g., an image processing apparatus, column 19, line 44) comprising:

a bit connection component that connects a cumulative value of decimals of

preceding image data to input image data as lower bits of the input image data

(e.g., in step S7, an arithmetic error which is the total sum of an omitted decimal

portion is calculated, and in step S8 the calculated arithmetic error (decimal

portion) is distributed to pixels which neighbor on the objective pixel, column 21,

line 60 - column 22, line 18); correction component that corrects the connected

input image data with a quantization error (e.g., data adding means 902 for

adding an input image signal to an error distributed from neighboring pixels,

column 19, lines 44-47); a quantization component that quantizes an integral

portion of the corrected input image data (e.g., binarizing means 903 for

binarizing a signal output from data adding means 902, figure 25, column 19,

lines 47-49); a calculation component that calculates the quantization error,

which is generated by quantization by said quantization component, to provide

the calculated quantization error to said correction component (e.g., error

distributing means (block 907) and error-to-be-distributed computing means

(block 904), figure 25, column 19, lines 40-65); a buffer that stores the calculated

quantization error (e.g., error storing means (block 908), figure 25); and an error

diffusion component that diffuses the quantization error on the basis of at least a

quantization error of a first pixel, which is stored in said buffer (e.g., data adding

means (block 902) for adding an input image signal to an error distributed from

neighboring pixels, figure 25, column 19, lines 40-65).

Katayama differs from claim 1, in that he does not explicitly show a latch

component that latches a decimal portion of the corrected input image data.

Katayama discloses in first embodiment a latch component that latches a

decimal portion of the corrected input image data (e.g., flip-flops 15a-15d for

latching data, column 7, lines 31-36).

Therefore it would have been obvious to one of ordinary skill in the art at

the time of the invention to have modified Katayama's seventh embodiment to

inclue a latch component that latches a decimal portion of the corrected input

image data as taught by Katayama's first embodiment. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Katayama's seventh embodiment by the teaching of Katayama's first embodiment to store and distribute decimal portion back to input image data to have better image.

With regard to claim 3, Katayama discloses further comprising a stop component that stops propagating the correction value in a case in which it is inappropriate to propagate the correction value to next and subsequent pixels (e.g., the error distribution controlling circuit, figures 6, column 7, line 61 – column 8, lines 63).

With regard to claim 7, Katayama discloses further comprising a numerical value limit component that limits the quantization error calculated by said calculation component to a numerical value within a predetermined range (e.g., the error distribution controlling circuit, column 7, line 61 – column 8, line 65).

Referring to claim 20:

Claim 20 is the method claim corresponding to operation of the device in claim 1 with method steps corresponding directly to the function of device elements in claim 1. Therefore claim 20 is rejected as set forth above for claim 1.

Referring to claim 22:

Claim 22 is the method claim corresponding to operation of the device in claim 3 with method steps corresponding directly to the function of device elements in claim 3. Therefore claim 22 is rejected as set forth above for claim 3.

Referring to claim 26:

Claim 26 is the method claim corresponding to operation of the device in

claim 7 with method steps corresponding directly to the function of device

elements in claim 7. Therefore claim 26 is rejected as set forth above for claim 7.

Referring to claim 39:

Claim 39 is the computer-executable program claim corresponding to

operation of the device in claim 1 with instruction steps corresponding directly to

the function of device elements in claim 1. Therefore claim 39 is rejected as set

forth above for claim 1.

Claims 4-6, and 23-25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Katayama et al. (Katayama) (US 5,488,673) as applied to

claims 1 and 3 above, and further in view of Nakano et al. (Nakano) (US

6,977,756).

With regard to claim 4, Katayama differs from claim 4, in that he does not

explicitly show a clear component to clear data/error portion in latch/temporary

memory in case in which it is inappropriate.

Nakano discloses a clear component to clear data/error portion in

latch/temporary memory (e.g., it clears a content of the error holding register,

column 5, lines 58-61).

Therefore it would have been obvious to one of ordinary skill in the art at

the time of the invention to have modified Katayama to include a clear

component to clear data/error portion in latch/temporary memory in case in which

it is inappropriate conditions as taught by Nakano. It would have been obvious to

one of ordinary skill in the art at the time of the invention to have modified

Katayama by the teaching of Nakano to clear data/error as needed.

With regard to claim 5, Nakano discloses further comprising a processing

limit component that limits clearing by said clear component when a scanning

direction of the input image is reversed (e.g., adder 9 detects forward and

reversed direction, column 9, lines 13-34).

With regard to claim 6, Nakano discloses wherein the case in which it is

inappropriate to propagate the correction value to next and subsequent pixels

includes at least one of a case in which a pixel of interest is a start pixel of a line,

a case in which the pixel of interest has a value equal to a lower limit level of the

input image, and a case in which the pixel of interest has a value equal to an

upper limit level of the input image (column 8, line 48 – column 9, line 3).

Referring to claim 23:

Claim 23 is the method claim corresponding to operation of the device in

claim 4 with method steps corresponding directly to the function of device

elements in claim 4. Therefore claim 23 is rejected as set forth above for claim 4.

Referring to claim 24:

Claim 24 is the method claim corresponding to operation of the device in

claim 5 with method steps corresponding directly to the function of device

elements in claim 5. Therefore claim 24 is rejected as set forth above for claim 5.

Referring to claim 25:

Claim 25 is the method claim corresponding to operation of the device in claim 6 with method steps corresponding directly to the function of device elements in claim 6. Therefore claim 25 is rejected as set forth above for claim 6.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang N. Vo whose telephone number is 5712701121. The examiner can normally be reached on 7:30AM-5:00PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 5712727440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2625

Quang Vo

Quang N. Vo   12/18/07
Patent Examiner

KING Y. POON
SUPERVISORY PATENT EXAMINER

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.